



Rocky Mountain
Remediation Services, L. L. C.
... protecting the environment

PLAN

BUILDING 374 HEALTH AND SAFETY PLAN

RF/RMRS-97-121

Revision 0

March 1, 1998

APPROVED BY RPJEE 3-1-98 WM&T Manager Page 1 of 44

1.0 GENERAL INFORMATION

1.1 Scope and Applicability of Building 374 Health and Safety Plan (HASP)

1.1.1 Purpose

This Building 374-specific health and safety plan (HASP) is designed to meet OSHA requirements.

1.1.2 Scope

The Occupational Safety and Health Administration (OSHA) specifies in the Hazardous Waste Operations and Emergency Response regulation (29 Code of Federal Regulations [CFR] 1910.120) that operations conducted at treatment, storage, and disposal (TSD) facilities authorized under the Resource Conservation and Recovery Act (RCRA) must have a written health and safety program. This written program must be written to "identify, evaluate, and control safety hazards in [the] facilities..." This Building 374-specific health and safety plan (HASP) is designed to meet these OSHA requirements. Rocky Flats Environmental Technologies Site Guidelines for compliance with 29 CFR 1910.120, under non-emergency response conditions, are described in Health and Safety Practices Manual (HSP) 21.03, Hazardous Waste Operations.

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1.2 Companion Documents

The following documents must be available for use with this HASP.

Health and Safety Practices Manual

1-10000-HWR Hazardous Waste Requirements Manual

Training Users Manual (TUM)

Building 374 Waste Stream and Residue Identification and Characterization (WSRIC)

Building 374 Final Safety Analysis Report

Waste and Environmental Management System (WEMS)

Standard Operating Procedures (SOPs)

Building 371/374 Emergency Plan and Implementing Instructions

Hazard Communications Work Area Indoctrination Instructors Guide

RF/RMRS-97-060, RMRS Training Implementation Matrix

Radiological Operating Instructions

Rocky Flats Environmental Technology Site Radiological Control Manual

4-V81-374-AC-001, Acceptance Criteria for Waste into Building 374

374.001 Desaltable Waste Operations

374.002 Treatable Waste Operations

374.003 Chemical Preparation Operations

1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements

4-D99-WO-1100, Solid Radioactive Waste Packaging

1.3 Visitors

All visitors to the Radiological Buffer Area (RBA) and Contamination Area (CA) at this location will be required to read and verify compliance with the provisions of this HASP or receive a briefing and be escorted throughout their visit to the RBA or CA by a person knowledgeable of the requirements in this HASP. In addition, visitors will be expected to comply with relevant OSHA requirements such as medical monitoring, training, and respiratory protection as applicable.

In the event that a visitor does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All nonconformance incidents will be recorded in the foreman's log.

1.3.1 Minimum Entry Requirements for Visitors

The following table identifies the minimum entry requirements for areas addressed in this plan. Requirements for entry into the exclusion zone apply for entry into the RBA/CA as well. Minimum entry requirements include training, PPE, and medical surveillance.

RBA	CA	LOCATION	MINIMUM ENTRY REQUIREMENTS
X		Bldg. 374, Unit 374.1	Thermoluminescent Dosimeter (TLD) badge, safety shoes, safety glasses with side shields.
X		Bldg. 374, Unit 374.3B	Thermoluminescent Dosimeter (TLD) badge, safety shoes, safety glasses with side shields.
	X	Bldg. 374, Unit 374.3B	TLD badge, Radiological Work Permit (RWP) - safety glasses with side shields, hearing protection (where posted), safety shoes, modesty clothing, and other requirements listed on the RWP.

RBA = Radiological Buffer Area

CA = Contaminated Area

1.4 RCRA Unit Descriptions

At the Rocky Flats Environmental Technologies Site, TSDs are called Hazardous Waste Areas (HWAs) or RCRA Units. Refer to Appendix 1, Building 374 Hazardous Waste Areas and Appendix 2, Tank Information for full descriptions of the RCRA Units in Building 374.

1.5 Identification of Health and Safety Responsibilities

Operations Management is responsible for the health and safety of personnel throughout the HWA area. Personnel health and safety is primarily a line management function. Each line manager is accountable to upper management for carrying out assigned work in a safe manner, protecting personnel from potential risks, and providing personnel with a healthy and safe environment as proscribed by this HASP. Appendix 3, Lines of Responsibility shows lines of responsibility for each area. If line management finds an imminent danger hazard and requires that operations be stopped, then operations shall not resume until the same level of line management approves resumption.

Support services are provided by personnel from the following organizations: Engineering, Fire Department, Fire Protection, Industrial Hygiene and Safety, Occupational Health, and Radiation Protection. Specific responsibilities for each of the operations and support organizations are described in HSP 21.03.

1.6 Field Change Form

The following form is a sample of the form that shall be used to change or update the HASP. Anyone can initiate a change in the HASP by filling out the HASP Field Change Form and submitting it to the IH&S Representative.

The IH&S Representative will:

- Review the change and submit to the affected IH&S disciplines as needed for concurrence
- Will obtain final approval from the Unit Owner.
- Then submit the Field Change Form to the RMRS Document Control Officer to be annotated on a DMR.

HASP FIELD CHANGE FORM

Field Change Number: _____

Effective Date: _____

Requested by: _____
(Print Name)_____
Signature/DatePen and Ink changes to be made to the HASP to alert the reader of this change:

Reasons for the change to be incorporated into the HASP:

Text of change to be incorporated:

APPROVALS:_____
IH&S Representative Date_____
Unit Owner Date**AS NEEDED CONCURRENCE:**_____
Radiological Protection Date_____
Occupational Health Date_____
Fire Department Date

2.0 HEALTH AND SAFETY HAZARD ASSESSMENT

2.1 Task Analysis

The task numbers for each discrete task at these HWAs are listed in Appendix 4, Task Analysis. Tasks are broken down into steps. All inspections are visual inspections.

2.2 Hazard Analysis

Potential hazards associated with hazardous waste operations in these locations were identified by reviewing the physical layout of each area, the tasks associated with each area, and, where available, the results of chemical and radiological monitoring during previous operations. Radiological, physical, chemical, and other hazards potentially encountered during routine tasks are presented in Appendix 5. Hazard Analysis. Where applicable, Operational Safety Analysis (OSA), Standard Operating Procedures, and pre-existing hazard analysis documents are referenced. Hazard analysis and control for non-routine activities may be described in applicable Job Safety Analysis or Integrated Work Control Program packages.

2.2.1 RADIOLOGICAL HAZARDS

Radiological hazards and controls are fully described in the OSAs. Refer to Appendix 4, Task Analysis for the applicable OSAs for each of the listed tasks. Refer to Appendix 5, Hazard Analysis for the radiological hazards.

2.2.2 Chemical Hazards

Chemical hazards and controls are fully described in WSRIC and the OSAs. Refer to Appendix 4, Task Analysis for the applicable OSAs for each of the listed tasks. Refer to Appendix 5, Hazard Analysis for the chemical hazards and paths of entry into the body.

2.2.3 Biological Hazards

Biological hazards **ARE NOT** present in Building 374 listed tasks.

2.2.4 Confined Spaces

Confined space entries must comply with HSP 6.04 unless an equally restrictive subcontractor plan is used. Refer to Appendix 5, Hazard Analysis for the listed confined spaces in Building 374.

2.2.5 Physical Hazards

Physical hazards are fully described in SOP and OSAs. All procedures in Bldg. 374 contain descriptions of physical hazards.

As a minimum follow the guidance of the listed HSP and the Control Measures listed in Appendix 5, Hazard Analysis.

3.0 HEALTH AND SAFETY HAZARD CONTROL

Hazard control includes administrative, engineering and personal protective equipment methods. Section 2.2.5, includes control measures for each physical hazard identified. Appendix 6, Procedures, Posting, Monitoring, and Controls and Appendix 7, Personnel Protective Equipment defines administrative and engineering controls, personal protective equipment, and monitoring requirements for radiological and chemical hazards.

3.1 Personal Protective Equipment (PPE)

The criteria used to determine appropriate levels of personal protective equipment include the work being conducted; potential chemical, radiological and physical hazards at the site; availability of monitoring data; effectiveness of engineering or administrative exposure controls; and applicable regulations. As stated in HSP 8.01, Safe Work Apparel, Industrial Hygiene and Safety and Radiation Protection will assist supervisors in determining the required job-specific protective clothing.

HSP 7.03, Respiratory Protection, and HSP 7.05, Breathing Air, detail plant policy for respiratory protection. Refer to these practices for guidance on respiratory protection selection, issue and return, training, fit testing, medical evaluation, and limitations during temperature extremes.

Subcontractors may utilize their own Respiratory Protection Program provided it has been approved by the Respiratory Protection Program Administrator.

Industrial Hygiene and Radiological Protection shall evaluate control requirements and modifications according to the site monitoring. In the event of an emergency, the Radiological Control Technician (RCT) and Radiological Protection have authority to modify PPE for radiological hazards. The Industrial Hygienist may modify PPE requirements for non-radiological hazards. PPE upgrades shall be implemented when site monitoring indicates exposure limits meet or exceed the appropriate action levels of the specific contaminant(s) being monitored.

The tasks covered under this HASP are listed in Appendix 4, Tasks Analysis.

3.1.1 Radiological Postings Required

There are required radiological postings to be in place in Building 374 complex. The required postings are in accordance with the following:

- Health and Safety Practices Manual
- Radiological Operating Instructions
- Rocky Flats Environmental Technology Site Radiological Control Manual

Supervision and Radiation Protection will determine if any area in Building 374 needs postings upgraded to those listed in Appendix 6, Procedures, Posting, Monitoring, and Controls.

3.1.2 Radiological Monitoring

Appendix 6, Procedures, Posting, Monitoring, and Controls lists the radiological monitoring required to control the spread of contamination:

3.1.3 Engineering or Administrative Controls

Appendix 6, Procedures, Posting, Monitoring, and Controls lists the engineering or administrative controls in place for radiological control.

3.1.4 Non-Radiological Chemical Monitoring Requirements Action Levels

At the present time there are no non-radiological chemical monitoring requirements and action levels. At such time it is deemed necessary the monitoring and action levels will be incorporated in the work scope by Building 374 Management and Industrial Hygiene and Safety.

3.1.5 Procedures

Only approved procedures are used in Building 374. Refer to Appendix 6, Procedures, Posting, Monitoring, and Controls for a list of approved procedures.

3.2 Monitoring

The procedures for monitoring for hazards may include direct-reading instrumentation, radiation and contamination surveys, personal monitoring, and area sampling for radiological hazards. The objectives of this monitoring program are:

- To characterize the work area for the presence of airborne radioactivity; fixed and/or removable levels of contamination; possible release points; and area dose rates.
- To obtain sufficient quantitative measurements for ascertaining the correct site control assessment and boundaries, the appropriate levels of PPE for personnel, and decontamination procedures.
- To collect a sufficient number of smears and airhead filters from various survey points to characterize personal exposure levels.
- To evaluate overall effectiveness of exposure controls implemented at the site.

Industrial Hygiene and Safety identifies non-radiological and physical hazard monitoring; Radiological Protection defines radiological hazard monitoring requirements.

The Industrial Hygiene Procedures Manual, Sections 1.2, 1.3, 1.4, 1.5, and 2.2 describe quality assurance/quality control and record keeping SOPs for non-radiological Industrial Hygiene samples.

The Radiological Control Manual specifies quality assurance/quality control and record keeping for radiological samples.

3.3 Other Control Measures

Standard 29 CFR 1910.120(g) requires that "Engineering controls and work practices shall be instituted to reduce and maintain employee exposure to or below the permissible exposure limits except to the extent that such controls and practices are not feasible." Eating, drinking, or smoking is not permitted in HWAs.

3.4 Confined Spaces

Confined space entries must comply with HSP 6.04, Confined Space Entry Program. All confined spaces are listed in Appendix 5, Hazard Analysis. Subcontractor confined space programs must be at least as protective as HSP 6.04.

3.5 New Technologies

IH&S will coordinate evaluation of new technologies and equipment developed for the improved protection of employees working with hazardous waste clean-up operations for implementation at this site. IH&S will coordinate evaluation of these technologies with the assistance of resources in each of the IH&S departments as applicable. Any employee may introduce such a new technology to IH&S.

4.0 PERSONNEL HEALTH AND SAFETY TRAINING REQUIREMENTS

HSP 21.03 specifies Hazardous Waste Operations and Emergency Response Training requirements for hazardous waste activities. Training requirements are described in RF/RMRS-97-060, RMRS Training Implementation Matrix

5.0 MEDICAL SURVEILLANCE REQUIREMENT

The Medical Surveillance program is described in HSP 4.00, Medical Program, Chapters 4.02-4.17. Subcontractor Medical Surveillance Programs should comply with the requirements of 29 CFR 1910.120(f). Subcontractor Medical Surveillance Plan **WILL NOT** be used.

Physical examination practices are described in HSP 4.09, Physical Examinations. HSP 21.03 defines hazardous waste workers for purposes of medical surveillance.

There is no task-specific medical monitoring required beyond the hazardous waste worker medical surveillance for all respirator workers.

6.0 SITE CONTROL MEASURES

Specific work zones shall be designated on the site during invasive activities which create potential exposures (opening drums, etc.) or during spills. Site control and posting for radiation control shall be in accordance with EMRG 1.3/ROI 1.3 and guidance as provided by Radiological Protection. Zones will be designated by physical barriers such as cones and tape. The area immediately impacted will be declared the Exclusion Zone or Contamination Area. This zone is where contamination is either known or expected to occur and where the greatest potential for exposure exists. The Contamination Area will encompass a radius of sufficient distance from the product to allow for adequate materials handling and logistical needs prior to decontamination. The outer boundary of the Contamination Area is called the Hotline.

Site workers shall establish a Contamination Reduction Zone or Radiological Buffer Area, which may include a step-off pad. The Buffer Area is immediately adjacent to the Contamination Area, and will serve as the site for the decontamination of personnel and equipment when exiting the Contamination Area. The area will be secured by either posting signs establishing a barricade, or stationing a site employee at the access point. The area beyond the Contamination Area and Buffer Area will serve as the Support Zone or Uncontrolled Area. The Uncontrolled Area is an uncontaminated area where workers are unlikely to be exposed to hazardous substances or dangerous conditions.

Standard 29 CFR 1910.120(d) requires the following elements in the site control program:

REQUIREMENT	RESPONSE
Site Map	Appendix 8, Building 374 Process and Assembly Area.
Site work zones	Appendix 8 depicts the process areas units in Building 374.
Use of a "Buddy System"	HSP 2.04 states that "two or more people are required at all times when performing hazardous work." Hazardous work as defined includes "work with non-radioactive hazardous materials" and "work with radioactive materials in quantities that could result in radiation exposures in excess of established guidelines." Furthermore, a buddy system should be used where temperature stress is a significant hazard.
Site communications	The following communication methods are available: 1. Voice contact 2. Fire phone, located: <u>See Appendix 8</u> 3. Visual contact 4. Alarm pull box, located: <u>See Appendix 8</u> 5. LS/DW 6. Telephone, located: <u>Rms. 3803, 3808, 3811</u> 7. Radio contact
SOPs or safe work practices	SOPs and safe work practices are described in Sections 2.0, Safety and Hazard Assessment and 3.0, Safety and Hazard Control
Identification of the nearest medical assistance	Medical assistance is available at Building 122, Occupational Health, during normal working hours. <u>For emergencies, call Extension 2911.</u> Appendix G shows the location of Building 122.

7.0 DECONTAMINATION PLAN

HSP 18.02, Personnel Contamination Control Requirements for Radiological Controlled Areas, describes the requirements for decontamination. The objective of decontamination is to remove hazardous substances (chemical or radiological) from workers and equipment, to assure compliance with DOE Order DOE/EH-0256T, DOE Radiological Control Manual; 10 CFR835 Occupational Radiation Protection; and the RFETS Rad Con Manual; and OSHA standard 1910.120, and to preclude the occurrence of related adverse health effects. This chapter specifies decontamination techniques for applicable areas identified in Sections 1, General Description and 2. Safety and Hazard Assessment.

7.1 Decontamination Procedures and Location

The decontamination process shall take place within the RBA, if applicable (or outside of the contaminated area) in an area identified as the contamination reduction area which consists of the following items:

- Barrier to prevent unauthorized traffic through the area.
- Step-off pad, decontamination rooms, and ancillary decontamination equipment.
- Designated entry and exit points to prevent cross contamination.

These items are described in the following table:

Task #	Types of Barrier	Decontamination Equipment	Decontamination Steps
1-11	Door for Room 3168, Decon room for Bldg. 374	Shower, sink, towels, modesty clothing	Follow procedure 4-30000-FO-0001 and per RCT instructions

All employees leaving a contaminated area shall be appropriately decontaminated for the suspected contaminants. The extent of decontamination will be dependent on the level of contamination.

Workers in Level D PPE should wash hands and face and rinse or wipe boots before leaving contaminated area. Doffing procedures must be performed in the order listed to minimize the potential for personnel contamination during doffing activity.

Reusable products will be monitored for radiological contaminants and visible contamination to verify that they have been adequately decontaminated. The absence of radiological contamination is defined in 1-P73-HSP 18.10, Radioactive Material Transfer and Release of Property and Waste, as per DOE/EH-0256T, DOE Radiological Control Manual, and 10 CFR835, Occupational Radiation Protection, and the RFETS Rad Con Manual, and measured with radiation survey instruments capable of detecting Alpha and Beta/Gamma radiation at these levels.

7.2 Disposal Of Decontamination Equipment And Solutions

All contaminated clothing and equipment leaving the contaminated area shall be appropriately contained to prevent the spread of the contaminant and shall be properly managed or decontaminated in the appropriate decontamination area.

All wash solutions used for decontamination shall be contained in tubs, pans, four-liter jugs, or drums and used as process water. Containers will be designated for process waste use only and will not be used for any other purpose. All solutions shall be sampled for chemical constituents and radiological constituents for proper waste identification and stored or treated per plant policies and RCRA permits.

All wastes and equipment collected during decontamination procedures shall be stored and managed according to 1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements and 4-D99-WO-1100, Solid Radioactive Waste Packaging.

8.0 EMERGENCY RESPONSE

Building Emergency Preparedness Plan **DOES** exist for this location as prescribed by DOE Order 5500.3A.

Incidental Release— An incidental release is a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential, and toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up.

Releases that Require an Emergency Response Regardless of the Circumstances

There are releases of hazardous substances that pose a significant enough threat to health and safety that, by their very nature, require an emergency response regardless of the circumstances surrounding the release or the mitigating factors. An employer must determine the potential for an emergency in a reasonably predictable worst case scenario [or "anticipated emergencies," 29 CFR 1910.120(q)(1)], and plan response procedures accordingly.

Emergency Response— An emergency response includes, but is not limited to, the following situations:

- The response comes from outside the immediate release area;
- The release requires evacuation of employees in the area;
- The release poses, or has the potential to pose, conditions that are IDLH;
- The release poses a serious threat of fire or explosion (exceeds or has the potential to exceed the LEL or lower flammable limit);
- The release requires immediate attention because of imminent danger;
- The release may cause high levels of exposure to toxic substances;
- There is uncertainty that the employee in the work area can handle the severity of the hazard with the PPE and equipment that has been provided and the exposure limit could easily be exceeded; or
- The situation is unclear, or data is lacking on important factors.

The purpose of the Emergency Response Plan is to have a detailed pre-determined strategy for handling incidental or emergency incidents and potential problems. This pre-emergency planning will aid in immediate response and abatement of problems and will likely reduce the severity and impact of hazardous situations. The plan is designed to protect site personnel from potential hazards created by an emergency situation. In addition to safeguarding site personnel, the plan is designed to protect plant personnel and the public from potential hazards within the storage areas, and prevent equipment loss as a result of fire, explosion, or contamination.

If a release is observed, then the employee observing the release immediately warns coworkers in the contaminated area and notifies supervision.

Employees in the area of a release move to a safe location and secure the area to prevent unauthorized personnel from entering the contaminated area.

If at any time a potentially life threatening emergency or uncontrolled release exists, then immediately call the RFETS emergency number at X2911.

If supervision cannot be notified immediately, then the employee immediately continues notifying higher levels of supervision until communication has been achieved with one of the following authorities:

- Shift Manager
- Operations Manager or designee
- Shift Superintendent, X2914

The contacted authority ensures that the following notifications have been made:

- If a potentially life threatening emergency exists and X2911 has not been called, then immediately call X2911.
- If the release contains or potentially contains fissile materials, then immediately contact Nuclear Safety Engineering.
- Notify the Operations Manager.

If the release requires an emergency response, then the contacted authority makes the following notifications:

- Shift Superintendent X2914
- Fire Department Dispatch X4337 or X4338

Promptly report the release to the Emergency Operations Center Notification Officer at X3456 and the Shift Superintendent in accordance with 1-10000-HWR.

WARNING

To avoid potential of personnel injury, only employees trained as Hazardous Materials Technicians may take actions to stop a release requiring an emergency response.

Department/Group	Ext.	Page
Shift Superintendent (Incident Commander)	2914	
I H & S Lead	2337	1020
Occupational Health	2594	
Operations Manager	3561	5358
Liquid Waste Treatment Ops. Manager	6127	3561
Shift Manager	5385	4029
Facility Manager	4749	5610
Radiological Operations	5933	5511
Environmental Compliance	5967	7059
Release, Response, & Reporting*		
Security	2061	5185
Unit Owner, Unit 374.3	4753 4483	
Unit Owner, Units 374.1, 379	4144	0904
Criticality Safety Engineering		3077
Facilities Safety Engineering		
Waste Regulatory Program Representative	3456	

* On-call list available from EOC or Shift Superintendent.

If the supervisor is not available or the situation is life threatening, notify RFETS emergency response personnel as detailed below.

Call X2911 or radio channel #1 for emergency assistance for life threatening emergencies to access:

- Incident Commander (Shift Superintendent)
- Plant Protection Central Alarm Station
- Fire Department Dispatch Center, and
- Occupational Health

Provide as much detail about the emergency as possible. A decision to dispatch any or all of the following equipment will be made on the information provided:

- Fire Engine/Equipment
- Ambulance
- Hazmat Response Vehicle

Provide the following information, upon request, to the qualified Emergency Dispatcher:

- Exact location of the emergency (Bldg. #, Room #, Door #, etc.)
- Nature of the emergency
- Condition of patient, if applicable (breathing, conscious, bleeding, etc.)
- Special hazards in the area
- Your name
- Any other information requested

If no details are given, emergency response personnel will respond automatically.

The Incident Commander (IC) will immediately respond to all emergency alerts and alarms. Radio/telephone communications shall be maintained with personnel having access to the plant Public Address System. At his/her discretion, the IC may activate the Emergency Operations Center and notify departments that have an advisory role in the situation. The IC will determine if additional help from offsite agencies (police, hospitals, etc.) is required. The IC will then notify the following groups when appropriate:

Radiological Operations
Occupational Safety
EOC Notifications Officer
Waste Reg. Programs

Industrial Hygiene
Traffic
IH&S Lead
Haz. Waste Operations

Criticality Safety Engineering
Facilities Safety Engineering
Occupational Health

Radiological Operations and Industrial Hygiene will assess any hazards associated with the release of spilled product; the Fire Department Hazmat Team will be first responders. Waste Regulatory Programs will evaluate the incident for RCRA/CERCLA/SARA Title III reporting requirements. Industrial Hygiene and Radiological Operations shall advise on the type of PPE, including respiratory protection, in the event of an emergency. Other notification requirements are described in Hazardous Waste Requirements Manual 1-C49-HWRM-04, Release Response and Reporting, and ADM 16.02.

Industrial Hygiene will approve any neutralizing materials that may be required.

Only the RFP Fire Department has emergency response equipment; the HWAs will only have incidental spill equipment. All work sites are equipped with incidental release response equipment; minimum incidental release response equipment needed is as follows:

Spill Response Supplies	Location
Coveralls (Saranex for acid storage, Tyvek for other operations.)	Rms 3801, 3810, 3811 (cage)
Gloves (Butyl, Neoprene/Nitrile, leather, surgeons, etc.)	Rms 3801, 3810, 3811 (cage)
Booties (Santa Claus, Oak Ridge, etc.)	Rms 3801, 3810, 3811 (cage)
Tape (1 inch, 2 inch, and 6 inch)	Rms 3801, 3810, 3811 (cage)
Disposable wipes	Rms 3801, 3809, 3811 (cage)
Poly bags	Rms. 3801, 3810, 3811 (cage)
Absorbents (such as Oil Dry)	Rms. 3801, 3810, 3811 (cage), 4101
Broom and dust pan (non-sparking)	Rooms 3811 (cage), 4105
Mop and Bucket	Rooms 3801, 3806, 3809, 3810, 3811 (cage), 4105
Neutralizer, for acid and caustic (minimum 1 liter of each)	Room 4101
55-gallon poly bags	Room 3811 (cage)
Wet Vacuum pickup	Rms. 3801, 3809, 3810, 3811 (cage)
Roll of plastic	Room 3811 (cage)
Decon solution (KW)	Piped throughout the bldg.
Face shield	Rms 3801, 3810, 3811 (cage)
Pumps	Rooms 4101, 4105
Extension cords	Room 3801, 3810, 3811 (cage), 4105
55-gallon containers (poly, soft steel, as needed)	Room 3811

Spill response requirements are described in HSP 21.04, Emergency Response and Spill Control, and in Hazardous Waste Requirements Manual (HWRM) Section 4.

WARNING

All potentially uncontrolled spills are to be reported to the emergency coordinator at X2911 or radio channel #1. This action will control the spread of contamination.

Incidental spill response procedures: If safe to do so, shut off or stop the source of the leak. Evacuate the area and contact supervision or shift manager and follow their direction.

For each RCRA-regulated tank system, specific response actions have been developed to provide direction in case of a release from a tank. Appendix 3 identifies the RCRA tanks addressed by this plan, the contents of the tank, the maximum volume for the tank (except where noted), and the type of response (incidental or emergency) that may be required. If the incident involves a situation that has not been pre-planned, the manager responsible (or designee) for the tank system must determine the type of response required for this specific incident. This determination will be made based on recommendations from technical specialists (e.g., industrial hygiene or radiological engineering). An emergency response should be considered if there is data lacking on important factors associated with the incident. For any release, the Incident Commander may override the type of response specified in Appendix 3 if the conditions for the specific incident warrant a different response (e.g., if adequately trained and protected personnel are available who can safely respond to contain and stop a release that has been pre-designated possibly requiring an emergency response, the Incident Commander may allow building personnel to respond as an incidental release).

If the tank is receiving waste at the time of the incident, immediate action shall be taken to stop the flow of waste into the tank by shutting down feed/transfer pumps and closing isolation valves. For tanks that have been taken out of service, confirm that all feed lines to the tank system are isolated. The feed/transfer pumps and isolation valves for each tank are listed on Appendix 2, Tank Information.

For all releases, prompt corrective action will be taken to stop the release either by temporary or permanently repairing the tank (e.g., use of repair putty, tightening the flange connections, etc.) or by draining the tank below the leak point to prevent further release of waste. If the tank is to be drained to prevent further release, the possible alternatives for storage of the drained material are listed in the Operating Procedures for each tank. If the drained material will be transferred to another tank, the transferred liquid must be compatible with any liquid that could be stored in the receiving tank. The corrective action to stop the release will be completed, as soon as possible, but not later than within 24 hours after detection of the leak or, if the responsible Manager can demonstrate that this is not possible, at the earliest practicable time. If the leak cannot be stopped within 24 hours, written justification and a schedule when this corrective action will be completed must be provided by the responsible Manager to the Colorado Department of Public Health and Environment (CDPHE) within 15 calendar days of the incident.

If a temporary repair is made to stop the leak, an assessment must be performed to determine if the tank is fit for use. This assessment must be completed by an engineer(s) with experience in materials and construction methods and familiar with the Colorado Hazardous Waste regulations. If it is determined that the tank is unfit for use, then the tank must be closed in accordance with the requirements described in the RCRA Part B Permit Section X, Closure.

If the material is released to a secondary containment system, all released material will be removed within 24 hours of the detection of the leak or in as timely a manner as is possible (if the owner or operator can demonstrate to CDPHE that removal of the released material cannot be accomplished within 24 hours) to prevent harm to human health or the environment. Dependent on the quantity of material released and location of the release, the material may be recovered by wet vacuum pickup or by squeegeeing the material down the nearest floor drain or sump. Small releases may be picked up using kimwipes. Dependent on the situation (quantity of release, type of material released, location of release, extent of release, condition of containment, etc.), the responsible manager may choose an alternative method for recovering the released material.

If there is visible evidence that the material was released to the environment, immediate action will be taken to prevent further migration of the leak or spill to soils or surface water. In addition, any visible contamination of the soil or surface water will be immediately removed and properly disposed of.

If there is a visible leak path to the environment from the containment system but the possibility of a release cannot be verified by visible inspection (e.g., a leak path allowing a release to soil beneath a building structure), the RCRA Contingency Plan will be implemented as a precautionary measure. The results of the containment assessment will be included in the RCRA Contingency Plan Implementation Report. Within 30 days of the incident, a plan detailing the steps to determine if the soil has been affected, will be prepared by the responsible the Manager and will be submitted to CDPHE for review and approval. If contamination is detected, and within 30 days of confirmation of soil contamination, a contaminated soils response plan detailing the steps to remove and/or remediate the affected soil and ground water will be prepared by the responsible Manager and will be submitted to CDPHE for review and approval.

The tank system must be repaired in accordance with 6 CCR 1007-3 Section 264.196(e)(2) through (4) prior to returning the system to service. If the tank cannot or will not be repaired, the tank system must be closed in accordance with the requirements described in the RCRA Part B Permit Section X, Closure.

For releases from ancillary equipment associated with a RCRA tank system, the same process of promptly stopping the release, isolating the affected portion of the tank system, stopping the leak or draining the affected portion of the tank system below the leak point, AND repairing the affected portion of the tank system or closing the tank system will be completed. All waste flow to the tank system will be stopped by shutting down the transfer/feed pumps and closing the isolation valves listed in Appendix 3. In addition, isolation valves (if present) for the affected ancillary equipment will be closed to further isolate the affected portion of the tank system.

For any material recovered from a release incident, a hazardous waste determination and hazardous constituent characterization will be completed in accordance with the Hazardous Waste Requirements Manual, Waste Identification and Analysis (1-C75-HWRM-03). If the recovered material is a hazardous waste, it will be stored, treated, and disposed of according to the applicable requirements listed in the Hazardous Waste Requirements Manual.

Contacted authority (supervisor, etc.) must also ensure that the Shift Superintendent or EOC Notification Officer notifies the on-call Waste Regulatory Programs representative.

Equipment used for spill response will be decontaminated at the Decontamination Facility or by washing with a soap solution. Non-reusable items used for decontamination and decontamination wash water will be handled per the Hazardous Waste Requirements Manual and plant policies. The Project Manager will ensure that emergency equipment is restocked and a post-emergency review is performed.

Notify the Fire Department in the event of a fire, no matter how minor.

WARNING

Report fires and explosions to X2911 or radio channel #1. This action will help mitigate the emergency.

After reporting the fire, contact area supervision, clear personnel from immediate area, and evacuate to the designated Assembly Area. Refer to Appendix 8, Building 374 Process and Assembly Area.

Contacted authority (supervisor, etc.) must also ensure Shift Superintendent or EOC Notification Officer notifies the on-call WRP representative.

Personnel and visitors to this HWA will not respond to the incident and will evacuate the area if any of the following occur:

- Fire, explosion
- If a Criticality Alarm sounds
- If instructed by the Life Safety/Disaster Warning (LS/DW) Public Address System
- If instructed by site supervision
- Other: Follow the guidance of the incident commander

Most spills require evacuation of the immediate RBA, only. Personnel will exit through the step-off pad, if possible. If the spill situation forces evacuation by some other exit, personnel should limit their movements when they are outside the RBA. In the case of fire, explosion, criticality alarm, or some other evacuation notice given over the LS/DW system, assembly areas outside of the building are taught in the building indoctrination or site briefings. After an evacuation, the supervisor is required to verify that all employees under his/her supervision are accounted for.

In the event of an evacuation, see Appendix 8, Building 374 Process and Assembly Area for evacuation routes out of Building 374 process areas.

9.0 REFERENCES

Title 10 Code of Federal Regulations, Part 835, "Occupational Radiation Protection"
Title 29 Code of Federal Regulations, Part 1910, "Occupational Safety and Health Standards for General Industry"
Title 29 Code of Federal Regulations, Part 1910.120, "Hazardous Waste Operations and Emergency Response"
Title 29 Code of Federal Regulations, Parts 1920.1000 through 1910.1048 (Subpart Z), "Toxic and Hazardous Substances"
Title 29 Code of Federal Regulations, Part 1926, "Safety and Health Regulations for Construction"
Title 40 Code of Federal Regulations, Part 260-270, "Hazardous Waste Management System"
Title 49 Code of Federal Regulations, Transportation
NIOSH Occupational Safety and Health Guidance for Hazardous Waste Site Activities, US Department of Health and Human Services, National Institute of Occupational Safety and Health (NIOSH), October 1996
Threshold Limit Values and Biological Exposure Indices for 1997, American Conference of Governmental Industrial Hygienists, 1997

5400.1 General Environmental Protection Plan
5400.5 Radiation Protection of the Public and the Environment
5480.6 Radiological Control Manual
5480.11 Radiation Protection for Occupational Workers
5480.19 Conduct of Operations
DOE/EH-0256T, DOE Radiological Control Manual

1-31000-COOP, Conduct of Operations Manual
HSP, Health and Safety Practices Manual
1-10000-HWRM, Hazardous Waste Requirements Manual
ROI, Radiological Operating Instructions
TUM, Training Users Manual
1-M12-WO-4034, Radioactive Waste Packaging Requirements
4-D99-WO-1100, Solid Radioactive Waste Packaging Inside of the Protected Area
1-C80-WO1102-WRT, Waste/Residue Traveler Instructions
EMD Operating Procedures, Volume 1
Environmental Management Radiological Guidelines
RFETS Radiological Control Manual

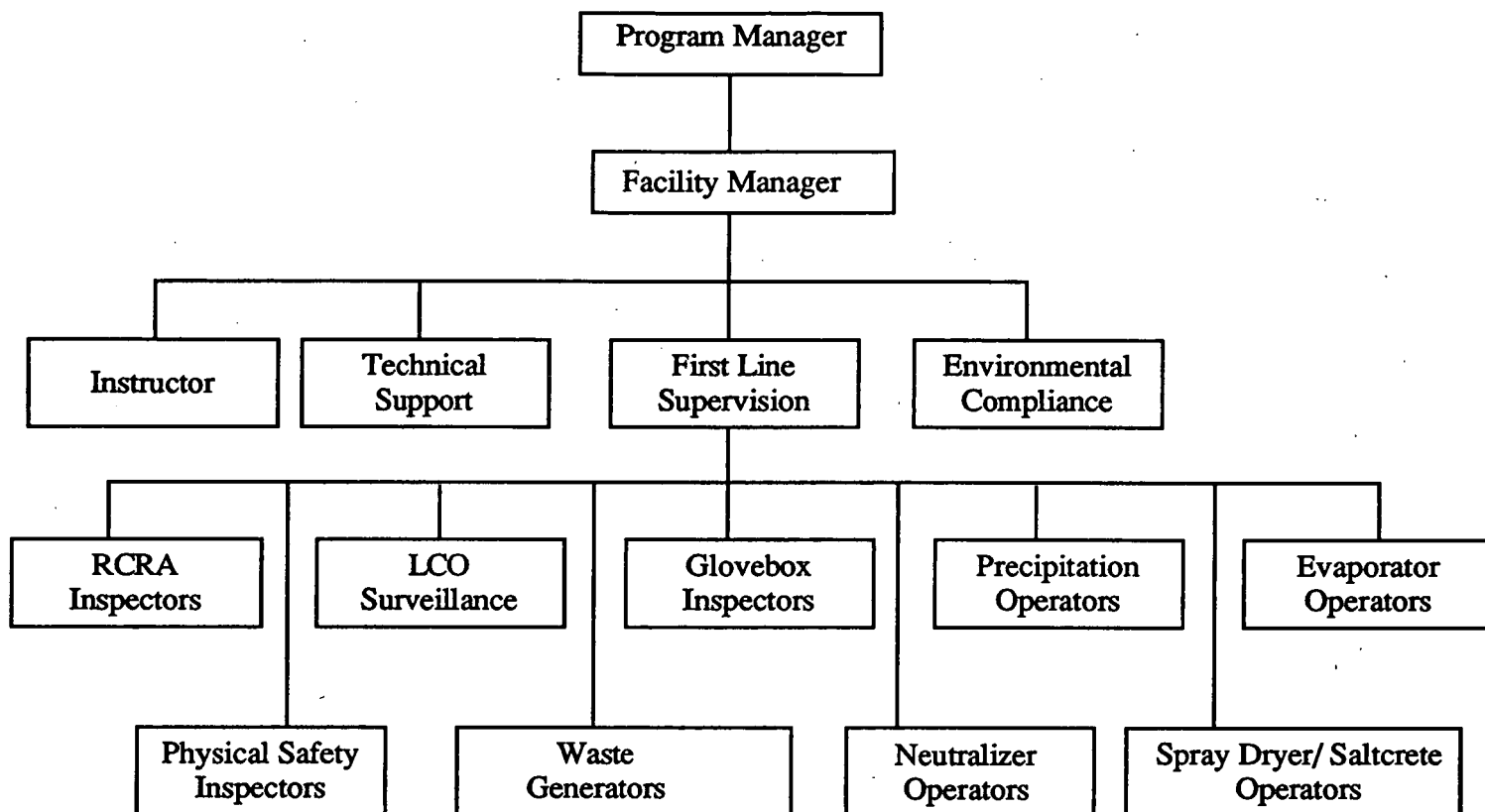
10. RECORDS

The following documents generated during the performance of the tasks defined in this document must be copied and distributed as follows: (Note: QA records are to be specifically designated as such)

<u>Document</u>	<u>Record Type</u>	<u>Disposition</u>
NONE		

APPENDIX 3

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LINES OF RESPONSIBILITY

APPENDIX 1

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BUILDING 374 HAZARDOUS WASTE AREAS**NOTE** For addition information refer to Appendix 2, Tank Information for tank numbers and room location

RCRA Unit Number	Common Name	DESCRIPTION
374.1	Mixed Waste Storage Area	This unit is a permitted container storage area for low-level mixed waste and transuranic mixed waste. RCRA inspections are performed weekly.
374.3B	Process Waste Treatment Facility	Building 374. Consists of many tanks which were once separate RCRA units. The RCRA permit for Bldg. 374 allows the treatment and storage of low-level aqueous waste, low-level solid waste, low-level mixed aqueous waste, low-level mixed solid waste, transuranic mixed aqueous waste, and transuranic mixed solid waste. The waste treated in this facility is generated plant-wide and is transferred to Bldg. 374 through the plant process waste collection transfer system (374.3A) or brought into the building by tank truck, dumpster tank, or other type of container. No organics are allowed in the waste streams processed by Bldg. 374 above the Maximum Contaminant Levels (MCLs) listed in 4-V81-374-AC-001, Acceptance Criteria for Waste into Building 374. Prior to transfer to Building 374, aqueous waste must have a minimum pH of 2 and a total Alpha content of less than or equal to 75,700,000 pCi/l or 1×10^{-3} g/l of any fissile material. Incoming aqueous waste is transferred to either the Treatable side (if above 13,500 pCi/l total gross Alpha) or the Desaltable side (if at or below 13,500 pCi/l total gross Alpha, relatively free of undissolved solids, and a pH of 6 or greater) waste treatment. The Treatable side consists of the neutralizer, precipitation, and vacuum filter processes. The Desaltable side consists of the evaporator and the spray dryer/saltcrete processes. RCRA inspections are conducted daily on Unit 374.3B.
374.3B1	Neutralizer Process	Acidic wastes from Building 371, non-pipeline shipments, and the chemical preparation area were transferred into the neutralizer process. Acid descale solution from the evaporator process was also received. In the neutralization process, potassium hydroxide was mixed with the acid waste to neutralize it to a pH between 9.5 to 14.0. The neutralized waste passed through a heat exchanger where it was cooled and sent to Tanks D-824 A and B in Room 2804 where it was stored for processing in the vacuum filter process. This process is presently inactive.
374.3B2	Decontamination-Precipitation Process	This process involves a three-stage gravity fed precipitation unit. Each stage is identical in operation and consists of four tanks; feed tank, reactor tank, flocculator tank, and clarifier tank. The waste stream is pumped from storage tanks in Room 2804 into the feed tank in Room 3801. From there, it is pumped into the reactor vessel. Magnesium sulfate, ferric sulfate, and calcium chloride reagents are added and mixed with the waste stream in the reactor vessel. If necessary, potassium hydroxide is added to bring the pH up to a minimum of 10.5. The waste stream gravity flows into the flocculator tank where it is mixed with a polymer to aid in the precipitation process. The waste then flows into the clarifier tank where the solids are allowed to settle to the bottom and the clear effluent flows over a weir and is pumped to either the clarifier effluent holding tanks for sampling or to the next stage feed tank. The sludge is transferred to Tanks D-824 A and B in Room 2804 where it is stored for processing in the vacuum filter process. If sampling results for the effluent show that the liquid is decontaminated to a level at or below 13,500 pCi/l total Alpha, the liquid is transferred to storage tanks for use as feed in the evaporator process. Liquid at levels higher than 13,500 pCi/l total Alpha is reprocessed through the precipitation process.
374.3B3	Evaporator Process	Desaltable, low-level mixed process waste, clarifier effluent from the decontamination-precipitation process, incidental water, and aqueous waste from the modular storage tanks serve as feed for the evaporator process. The steam driven, four effect evaporator boils the water thereby concentrating a salt solution. This solution, referred to as brine or concentrate, is the feed for the spray dryer/saltcrete process. Condensate (recovered product water) is returned for reuse in the cooling tower or as boiler makeup water.
374.3B4	Spray Dryer/Saltcrete Process	Brine solution is pumped to the spray dryer where it is atomized by the spray machine into a high temperature air stream. The particles are instantly dried and transferred to a bag filter system. These bag filters separate the moisture-laden air from the salt particles in the bag filter house. The filtered air passes through two single-stage high-efficiency particle air (HEPA) filter plenums and is discharged to the atmosphere. The salt particles drop into the salt hopper from the bag house and are fed into the saltcrete mix tank. Portland cement and brine from the evaporator are mixed with the dry salt to make saltcrete. The saltcrete is poured into plastic-lined plywood half-crates and allowed to cure. After curing, the saltcrete package is sealed and transferred to onsite storage or a disposal site.
374.3B5	Vacuum Filter Process	The vacuum filter process is located inside a large glovebox (GB-120). The system consists of a rotary drum filter which was precoated with a diatomaceous earth pad rotating through a filter pan filled with slurry. A vacuum source drew this slurry onto the surface of the filter pad. Filtrate was drawn through the pad into a receiving tank where it was pumped to the precipitation process, leaving sludge on the surface of the pad. A continuously advancing blade cut off a thin layer of pad and the sludge, dropping it onto a moving conveyor belt which deposited it into a white 55-gallon drum. An auguring system continuously added a mixture of cement and diatomaceous earth to the drum, thus ensuring the encapsulation of any water remaining in the sludge. When the drum was filled, it was removed from the drum port, sealed, labeled, and stored in a storage area. This process is presently inactive.

APPENDIX 2

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TANK INFORMATION

Tank/ RCRA Number	Room Number	Description of Tank Contents (Maximum volumes)	Criteria for Type of Response	Type of Response**	Circulation/ Transfer Pump No.	Circ/Trans Pump Location	Feed Pump No.	Feed Pump Location	Inlet Valve Numbers	Inlet Valve Locations	Outlet Valve Numbers	Outlet Valve Locations
D-801 A 374.3B1	2804	Concentrate Waste - 32,800 Gal.	Any quantity	Incidental	P-855 A	2804	See Note 1	See Note 1	Valve on Laundry Line	Behind D-804, Room 2804	V-0950	Btm of Tank, Room 2804
D-801 B 374.3B1	2804	Concentrate Waste - 32,800 Gal.	Any quantity	Incidental	P-855 B	2804	See Note 1	See Note 1	Valve on Laundry Line	Behind D-804, Room 2804	V-0960	Btm of Tank, Room 2804
D-801 C 374.3B1	2804	Concentrate Waste - 32,800 Gal.	Any quantity	Incidental	P-855 C	2804	See Note 1	See Note 1	Valve on Laundry Line	Behind D-804, Room 2804	V-0970	Btm of Tank, Room 2804
D-802 A 374.3B1	2804	Evaporator Feed - 22,500 Gal.	Any quantity	Incidental	P-801 A	2804	See Note 1	See Note 1	V-0906, On Desaltable line	Top of Tank, Behind D-804A	V-0900	Btm of Tank, Room 2804
D-802 B 374.3B1	2804	Evaporator Feed - 22,500 Gal.	Any quantity	Incidental	P-801 B	2804	See Note 1	See Note 1	V-0916, On Desaltable line	Top of Tank, Behind D-804A	V-0910	Btm of Tank, Room 2804
D-802 C 374.3B1	2804	Evaporator Feed - 22,500 Gal.	Any quantity	Incidental	P-801 C	2804	See Note 1	See Note 1	V-0926, On Desaltable line	Top of Tank, Behind D-804A	V-0920	Btm of Tank, Room 2804
D-804 A 374.3B1	2804	Precipitation Feed - 10,000 Gal.	Any quantity	Incidental	P-802 A	2804	See Note 1	See Note 1	V-1059, V-1061, On Treatable line	Top of Tank, Behind Tank	V-1067	Btm of Tank, Room 2804
D-804 B 374.3B1	2804	Precipitation Feed - 10,000 Gal.	Any quantity	Incidental	P-802 B	2804	See Note 1	See Note 1	V-1059, V-1062, On Treatable line	Top D-804A, Behind D-804A	V-1073	Btm of Tank, Room 2804
D-804 C 374.3B1	2804	Precipitation Feed - 10,000 Gal.	Any quantity	Incidental	P-802 C	2804	See Note 1	See Note 1	V-1059, V-1080 On Treatable line,	Top D-804A Behind D-804A	V-1081	Btm of Tank, Room 2804
D-804 D 374.3B1	2804	Sludge - 10,000 Gal.	Any quantity	Incidental	P-802 D	2804	See Note 1	See Note 1	V-1059, V-1095, On Treatable line	Top D-804A, Behind D-804A	V-1087	Btm of Tank, Room 2804
D-806 374.3B1	3801	Non-Nitric Acid Waste - 1,100 Gal.	Any quantity	Incidental	P-804	3801	See Note 1	See Note 1	V-1874	On P-835, Room 2804	V-1878	Btm of Tank, Room 3801
D-807 A 374.3B1	3801	Waste Nitric Acid - 2,200 Gal.	See Note 2	See Note 2	P-805 A	3801	See Note 1	See Note 1	V-1885, On line from 371	Room 3801	V-1888	Btm of Tank, Room 3801
D-807 B 374.3B1	3801	Waste Nitric Acid - 2,200 Gal.	See Note 2	See Note 2	P-805 B	3801	See Note 1	See Note 1	On line from 371	Room 3801	V-1889	Btm of Tank, Room 3801
D-808 374.3B1	3801	Waste Acid - 200 Gal.	See Note 2	See Note 2	P-806 A/B	3801	P-805 A/B	3801	V-1902	Top of Tank, Room 3801	V-1905	Btm of Tank, Room 3801
D-811 A 374.3B1	2804	Basic Waste - 12,000 Gal.	Any quantity	Incidental	P-809 A	2804	See Note 1	See Note 1	V-0878 On line from 371	Top of Tank, Trans Valv. 3801	V-0850	Btm of Tank, Room 2804
D-811 B 374.3B1	2804	Basic Waste - 12,000 Gal.	Any quantity	Incidental	P-809 B	2804	See Note 1	See Note 1	V-0879 On line from 371	Top of Tank, Trans Valv. 3801	V-0860	Btm of Tank, Room 2804
D-812 374.3B1	3801	Process Waste - 2,600 Gal.	Any quantity	Incidental	P-810	3801	P-802 A-D	2804	V-0201, 0202, 0203, 0205	Top of Tank, Room 3801	V-0208	Btm of Tank, Room 3801
D-813 374.3B2	3801	Process Waste - 250 Gal.	Any quantity	Incidental	N/A	N/A	P-810	3801	V-0217, 0449, 0219, 0453, 0451	Top of Tank, Room 3801	V-0226	Btm of Tank, Room 3801
D-814 374.3B2	3801	Process Waste - 750 Gal.	Any quantity	Incidental	N/A	N/A	P-810	3801	V-0461, 0231	Top of Tank, Room 3801	V-0234	Btm of Tank, Room 3801

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Tank/ RCRA Number	Room Number	Description of Tank Contents (Maximum volumes)	Criteria for Type of Response	Type of Response**	Circulation/ Transfer Pump No.	Circ/Trans Pump Location	Feed Pump No.	Feed Pump Location	Inlet Valve Numbers	Inlet Valve Locations	Outlet Valve Numbers	Outlet Valve Locations
D-815 374.3B2	3801	Process Waste - 3,100 Gal.	Any quantity	Incidental	P-836	3801	P-810	3801	NA	NA	V-0236	Btm of Tank, Room 3801
D-816 374.3B2	3801	Process Waste - 3,600 Gal.	Any quantity	Incidental	P-811	3801	P-802 A-D	2804	V-0252, 0253, 0256	Top of Tank, Room 3801	V-0260	Btm of Tank, Room 3801
D-817 374.3B2	3801	Process Waste - 300 Gal.	Any quantity	Incidental	N/A	N/A	P-811	3801	V-0264, 0466, 0465, 0266, 0464	Top of Tank, Room 3801	V-0276	Btm of Tank, Room 3801
D-818 374.3B2	3801	Process Waste - 900 Gal.	Any quantity	Incidental	N/A	N/A	P-811	3801	V-0280, 0282	Top of Tank, Room 3801	V-0285	Btm of Tank, Room 3801
D-819 374.3B2	3801	Process Waste - 4,400 Gal.	Any quantity	Incidental	P-838	3801	P-811	3801	NA	NA	V-0292	Btm of Tank, Room 3801
D-820 374.3B2	3801	Process Waste - 5,100 Gal.	Any quantity	Incidental	P-812	3801	P-802 A-D	2804	V-0308, 0311	Top of Tank, Room 3801	V-0314	Btm of Tank, Room 3801
D-821 374.3B2	3801	Process Waste - 520 Gal.	Any quantity	Incidental	N/A	N/A	P-812	3801	V-0319, 0330, 0321,	NA	V-0331	Btm of Tank, Room 3801
D-822 374.3B2	3801	Process Waste - 1,500 Gal.	Any quantity	Incidental	N/A	N/A	P-812	3801	V-0335	Top of Tank, Room 3801	V-0340	Btm of Tank, Room 3801
D-823 374.3B2	3801	Process Waste - 6,300 Gal.	Any quantity	Incidental	P-852	3801	P-812	3801	NA	NA	V-0346	Btm of Tank, Room 3801
D-824 A 374.3B5	2804	Sludge - 5,650 Gal.	Any quantity	Incidental	P-814 A	2804	N/A	N/A	V-0237, V-0239, V-0293, V-0295, V-0349, V-0347, V-1919, V-1928	Room 3801	V-1152	Btm of Tank, Room 2804
D-824 B 374.3B5	2804	Sludge - 5,650 Gal.	Any quantity	Incidental	P-814 B	2804	N/A	N/A	V-0237, V-0239, V-0293, V-0295, V-0349, V-0347, V-1919, V-1928	Room 3801	V-1176	Btm of Tank, Room 2804
D-825 A 374.3B5	4805	Filtrate - 100 Gal.	Any quantity	Incidental	P-815 A	3803	P-8	4807	V-1209	Side of Tank, Room 4805	V-1195	Btm. of Tank, Room 4805
D-825 B 374.3B5	4805	Filtrate - 100 Gal.	Any quantity	Incidental	P-815 B	3803	P-8	4807	V-1217	Side of Tank, Room 4805	V-1220	Btm. of Tank, Room 4805
D-826 A 374.3B2	3801	Clarifier Effluent - 19,886 Gal.	Any quantity	Incidental	P-817 A	3801	P-838, P-852	3801	V-0436,	Top of Tank, Room 3801	V-0379	Btm. of Tank, Room 3801
D-826 B 374.3B2	3801	Clarifier Effluent - 19,886 Gal.	Any quantity	Incidental	P-817 B	3801	P-838, P-852	3801		Top of Tank, Room 3801	V-0397	Btm. of Tank, Room 3801
D-826 C 374.3B4	3801	Concentrate - 19,886 Gal.	Any quantity	Incidental	P-817 C	3801	P-822	3810		Top of Tank, Room 3801	V-0413	Btm. of Tank, Room 3801
D-827 374.3B3	3810	Evaporator Feed - 8,000 Gal.	Any quantity	Incidental	P-818 A/B	3810	See Note 3	See Note 3		Top of Tank, Room 3810	V-0525	Btm of Tank, Room 3810
D-830 374.3B3	4814	Condensate - 90 Gal.	Any quantity	Incidental	NA	NA	NA	NA	V-0658	Behind Tank, Room 4814	V-0675, V-0677	Btm of Tank, Room 4814

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Tank/ RCRA Number	Room Number	Description of Tank Contents (Maximum volumes)	Criteria for Type of Response	Type of Response**	Circulation/ Transfer Pump No.	Circ/Trans Pump Location	Feed Pump No.	Feed Pump Location	Inlet Valve Numbers	Inlet Valve Locations	Outlet Valve Numbers	Outlet Valve Locations
D-832 374.3B3	4814	Condensate - 90 Gal.	Any quantity	Incidental	NA	NA	NA	NA	V-0702	Behind Tank, Room 4814	V-0731, V-0719	Btm. of Tank, Room 4814
D-834 374.3B3	4814	Condensate - 580 Gal.	Any quantity	Incidental	P-824	3810	NA	NA	NA	NA	V-0798	Btm. of Tank, Room 4814
D-843 374.3B1	2804	Waste Acid - 900 Gal.	See Note 2	See Note 2	P-835	2804	SEE NOTE 1	SEE NOTE 1	V-1860, V-1861	On Dock 8	V-1866	Btm of Tank, Room 2804
D-844 A 374.3B5	4807	Seal Water - 40 Gal.	Any quantity	Incidental	P-851 A, B	4807	P-853 A, B	NA	V-1798, V-1814	Between D-844A/B	V-1235, V-1234	Btm of Tank, Room 4807
D-844 B 374.3B5	4807	Seal Water - 40 Gal.	Any quantity	Incidental	P-851 A, B	4807	P-853 A, B	NA	V-1815, V-1818	Between D-844A/B	V-1816, V-1817	Btm of Tank, Room 4807
D-845 No Unit ID	3810	Acid Descale Solution - 1,000 Gal @ 80%	See Note 2	See Note 2	P-840, P-941	3810	P-77 A/B	Outside	V-0626, V-0571,	Top of Tank, Room 3810	V-0563	Btm. of Tank, Room 3810
D-848 374.3B5	4805	Precoat - 340 Gal.	Any quantity	Incidental	NA	NA	NA	NA	Water Valve	Top of Tank, Room 4805	AOV-7633, AOV-7637	Inside GB-120
D-852 374.3B1	2804	Process Waste - 4,000 Gal.	Any quantity	Incidental	P-8	2804	See Note 4	See Note 4	See Note 4	See Note 4	See Note 4	See Note 4
D-875 374.3B1	2804	Process Waste - 500 Gal.	Any quantity	Incidental	NA	NA	See Note 1	See Note 1	V-1054, V-1055, V-1057, V-1058	At D-804 A	V-1059	Between D-875 and D-804 A
D-876 374.3B3	4814	Condensate - 90 Gal.	Any quantity	Incidental	P-825	3810	NA	NA	V-0779	Behind Tank, Room 4814	V-0780	Btm. of Tank, Room 4814
D-878 374.3B4	3809	Concentrate - 910 Gal. @ 80%	Any quantity	Incidental	P-858 A/B	3809	P-817 C	3801	V-0013	Evap. Mezz., Room 4814	V-0011, V-0006	Btm. of Tank, Room 3809
D-879 374.3B3	4814	Tower Water - 200 Gal.	Any quantity	Incidental	P-861	3810		COOLING TOWER	V-0807, V-0806	Ejector Mezz., Room 4814	V-0808	At P-861, Room 3810
T-802 374.3B3	Outside	Process Waste - 450 Gals.@ 50%	Any quantity	Incidental	P-819	3810	P-818 A/B	3810	V-0621, V-0622	Near P-941, Room 3810	V-0596	At P-819, Room 3810
T-803 374.3B3	Outside	Process Waste - 400 Gals. @ 50%	Any quantity	Incidental	P-820	3810	P-819	3810	V-0647, V-0655, V-0646	At T-803. Inside 374 Rm 4814	V-0649	At P-820, Room 3810
T-804 374.3B3	Outside	Process Waste - 560 Gal. @ 50%	Any quantity	Incidental	P-821	3810	P-820	3810	V-0696, V-0712, V-0713	At T-804 Inside 374, Rm 4814	V-0691	At P-821, Room 3810
T-805 374.3B3	Outside	Process Waste - 770 Gal. @ 80%	Any quantity	Incidental	P-822	3810	P-821	3810	V-0741, V-0770, V-0771	At T-805 Inside 374 Rm 4814	V-0735	At P-822, Room 3810
T-807 374.3B5	4805/ 3803	Process Waste - 100 Gal.	Any quantity	Incidental	P-816 A/B	3803	NA	NA	V-3857, V-1708, V-3895	On top T-807, At E-804's	V-1714, V-3860	Btm of T-807, Rms 3803/4805
T-808 A No Unit ID	Outside	Not in Service	Any quantity	Incidental	P-955 A, B, C	Bldg.	P-824, P-825	3810	V-2831, V-2832	At P-955 A, B, C	V-2820	Btm of Tank, Outside
T-808 B No Unit ID	Outside	Not in Service	Any quantity	Incidental	P-955 A, B, C	Bldg.	P-824, P-825	3810	V-2831, V-2832	At P-955 A, B, C	V-2821	Btm of Tank, Outside

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Tank/ RCRA Number	Room Number	Description of Tank Contents (Maximum volumes)	Criteria for Type of Response	Type of Response**	Circulation/ Transfer Pump No.	Circ/Trans Pump Location	Feed Pump No.	Feed Pump Location	Inlet Valve Numbers	Inlet Valve Locations	Outlet Valve Numbers	Outlet Valve Locations
T-883 A 374.3B4	3809	Process Waste - 100 Gal.	Any quantity	Incidental	NA	NA	P-884, P-817 C	3809, 3801	Brine—V-0079 Salt & Cement N/A	Brine top T-883A Salt & Cement N/A	Air Operated Dump Valve	On Control Panel, Room 3809
T-883 B 374.3B4	3809	Process Waste - 100 Gal.	Any quantity	Incidental	NA	NA	P-884, P-817 C	3809, 3801	Brine—V-0078 Salt & Cement N/A	Brine top T-883B Salt & Cement N/A	Air Operated Dump Valve	On Control Panel, Room 3809
T-884 374.3B4	3809	Dry Salt - NA	Any quantity	Incidental	P-884	3809	Star Valve	3809	Star Valve	In Control Room 3181	Butterfly Valve	On Control Panel, Room 3809
FL-802 A 374.3B5	4805	Sludge - 50 Gal.	Any quantity	Incidental	P-814 A/B	4807	P-814 A/B	2804	V-1207	Near D-825A, Room 4805	Filtrate V-1209 Drain AOV-7625	Filtrate side D-825A AOV bottom FL-802A
FL-802 B 374.3B5	4805	Sludge - 50 Gal.	Any quantity	Incidental	P-814 A/B	4807	P-814 A/B	2804	V-1215	Near D-825 B, Room 4805	Filtrate V-1217 Drain N/A	Filtrate side D-825B Drain N/A
FL-803 374.3B4	4812	Dry Salt - NA	Any quantity	Incidental	Star Valve	3809	NA	NA	NA	NA	Star Valve	Top of T-884, Room 3809
FL-831 374.3B2	3801	Process Waste -NA	Any quantity	Incidental	NA	NA	P-852	3801	V-0447	Above D-877, Room 3801	V-0445	Above D-877, Room 3801
W-801 374.3B5	3803	Dry Sludge - NA	Any quantity	Incidental	NA	NA	P-814 A/B	2804	NA	NA	NA	NA
W-803 374.3B4	4802	Dry Salt - NA	Any quantity	Incidental	NA	NA	P-858 A/B	3809	V-0033	Top of Spray Chamber	NA	NA
DCP 374.3B5	3803	Dry Sludge - NA	Any quantity	Incidental	NA	NA	P-814 A/B	2804	NA	NA	NA	NA
D-155 A No Unit ID	2804	Not in Service	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-155 B No Unit ID	2804	Not in Service	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTE 1 These tanks receive waste from various buildings all over plantsite. Process Specialists from Building 374 transfer these tanks to Bldg. 374. If there is a problem with one of the tanks in Bldg. 374, the Process Specialist who is transferring into the tank is notified to immediately curtail the transfer. For more information, reference the applicable waste transferring procedure.

NOTE 2 For tanks containing HNO_3 , a release of 5 gallons or more constitutes an emergency, contact hazmat team for spill response. Releases of less than 5 gallons are incidental releases, contact Shift Manager and/or IH&S representative for spill cleanup instructions.

NOTE 3 The following tanks transfer feed to tank D-827: D-801 A, B, C using pumps P-855 A, B, C; D-802 A, B, C using pumps P-801 A, B, C; D-826 A, B using P-817 A, B; T-231 A, B using pumps P-1 and P-2.

NOTE 4 See Appendix 9, Process Drains all sources of feed into this tank.

APPENDIX 4

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TASK ANALYSIS

TASK NUMBER	TASK TITLE	SOP (if applicable)	TASK STEPS
1	Daily RCRA Inspections	Hazards addressed in OSA-374.001, OSA-374.002	1. Notify Shift Manager. 2. Perform inspections per Hazardous Waste Requirements Manual. 3. Complete paperwork. 4. File documents.
2	Weekly RCRA Inspections	Hazards addressed in OSA-374.001, OSA-374.002	1. Notify Shift Manager. 2. Perform inspections per Hazardous Waste Requirements Manual. 3. Complete paperwork. 4. File documents.
3	LCO Surveillances	Hazards addressed in OSA-374.001, OSA-374.002	1. Notify Shift Manager. 2. Perform surveillances per the Building 374 OSR. 3. Complete paperwork. 4. File documents.
4	Quarterly Glovebox Inspection	4-I18-374-GU-001, Glovebox Upkeep. Hazards addressed in OSA-374.002	1. Schedule on the POD. 2. Notify Shift Manager. 3. Perform inspection per procedure. 4. Complete required paperwork. 5. File documents.
5	Monthly Physical Safety Inspection	Line Safety. Hazards addressed in OSA-374.001, OSA-374.002, OSA-374.003 HSP 2.01	1. Schedule on the POD. 2. Notify Shift Manager. 3. Perform inspection per Line Safety Training. 4. Complete required paperwork. 5. File documents.

TASK NUMBER	TASK TITLE	SOP (if applicable)	TASK STEPS
6	Waste Generation	4-D99-WO-1100 and 1-C80-WO1102-WRT, Hazards addressed in OSA-374.001, OSA-374.002	1. Package waste according to WO-1100. 2. Complete paperwork per WO-1102.
7	Acid Receiving and Neutralization	NA Hazards addressed in OSA-374.002, OSA-374.003	Process presently inactive
8	Decontamination -Precipitation Process	WO-3011 Hazards addressed in OSA-374.002, OSA-374.003	1. Schedule on the POD. 2. Notify Shift Manager. 3. Preliminary checks and setup. 4. Feed stream setup. 5. Manual operation. 6. Reagent maintenance. 7. Pressure precoat filter, if used. 8. D-824 A/B decant operation. 9. Process sampling. 10. Transfer from D-826's to D-827. 11. Transfer from D-826's to D-802's. 12. Transfer from D-826's to T-231's. 13. Transfer from D-826's to D-804's. 14. Shutdown.
9	Filtering and Packaging Sludge	NA Hazards addressed in OSA-374.002, OSA-374.003	Process presently inactive

APPENDIX 4
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TASK NUMBER	TASK TITLE	SOP (if applicable)	TASK STEPS
10	Evaporator	4-D09-OPS-374-WO-3002 Hazards addressed in OSA-374.001, OSA-374.002	1. Schedule on the POD. 2. Notify Shift Manager. 3. Preliminary checks and setup. 4. Feed stream setup. 5. Process valve settings. 6. Filling the vapor bodies. 7. Starting the ejectors and the product water transfer system. 8. Supplying steam, regulating pressures, and supplying feed. 9. Product water management. 10. Concentrate management. 11. Descaling the evaporator heat exchangers. 12. Maintaining evaporator logs. 13. Cleaning the FL-801 A/B strainers. 14. Steam trap maintenance. 15. Flushing vapor body demister pads. 16. Shutdown.

TASK NUMBER	TASK TITLE	SOP (if applicable)	TASK STEPS
11	Spray Dryer/Saltcrete	4-D10-OPS-374-WO-3004 Hazards addressed in OSA-374.001,	1. Schedule on the POD. 2. Notify Shift Manager. 3. Preliminary checks and setup. 4. Spray machine startup. 5. Blower startup. 6. Furnace startup. 7. Spray Dryer preheat operation. 8. Supplying feed to the system. 9. Maintaining Spray Dryer logs. 10. Removing solids from the feed tank. 11. Sampling salt from the baghouse. 12. Transferring cement from the silo. 13. Package preparation. 14. Saltcrete operation startup. 15. Transfer of salt from T-884 to T-883 A or B. 16. Transfer of cement from T-885 to T-883 A or B. 17. Product processing. 18. Maintaining saltcrete documentation. 19. Completing package documentation for each crate. 20. Mix tank cleanup. 21. Package inspection and closure. 22. Spray machine shutdown. 23. Emptying the baghouse. 24. Saltcrete shutdown.

APPENDIX 5

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HAZARD ANALYSIS

2.2.1 Radiological Hazards

HAZARD	DESCRIPTION
Isotope Present	See signs at entrance to specific areas.
% DAC Derived Air Concentration (hours) (DAC)	Posted for respiratory protection, if greater than 10% DAC; if 1. 25,000 dpm/100cm ² uncontained, removable alpha contamination and 2. There is a real potential for airborne radioactivity.
Fixed Contamination dpm/100cm ² Disintegrations per minute (dpm) square centimeters (cm ²)	Prior to entering the area, check posted survey results for current radiological conditions. Check entrances to areas for signs and postings.
Removable Contamination dpm/100 cm ²	See signs at entrance to specific areas.
Dose Rate Neutron OR Dose Rate Beta/Gamma	See signs at entrance to specific areas.

2.2.2 Chemical Hazards

HAZARD TYPE	ARE CONCENTRATIONS GREATER THAN 1/2 PEL* or 10% LEL EXPECTED IN THIS TASK?	TASK NUMBER	ROUTES OF EXPOSURE DURING TASK: INHALATION (I) BODY SPLASH (B) FACE SPLASH (F) HANDS (H) OTHER - SPECIFY
VOCs	() Likely (X) Unlikely () Unknown		
Corrosives	() Likely (X) Unlikely () Unknown	6, 7, 8, 9, 10, 11	B, F, H
Fire Hazard	() Likely (X) Unlikely () Unknown	11	
Carcinogens	() Likely (X) Unlikely () Unknown		
Other Toxins	() Likely (X) Unlikely () Unknown	6, 7, 8, 9, 10, 11	I, B, F, H

PEL = Permissible Exposure Limit* use threshold limit value if more restrictive

LEL = Lower Explosive Limit

VOCs = Volatile Organic Compounds

2.2.4 Confine Spaces in Building 374

LISTED AS CONFINED SPACE
1. Room 2804 - Tanks (entries not required)
2. Room 3801 - Tanks (entries not required)
3. Room 3803 - Glovebox 118
4. Room 3809 - Tanks (entries not required)
5. Room 3810 - Tanks (entries not required)
6. Room 4802 - FL-803 (Baghouse)
7. Room 4805 - Glovebox 120
8. Room 4812 - W-803 (Spray Chamber) (entries not required)

2.2.5 Physical Hazards

HAZARD	HSP SECTION	CONTROL MEASURES
Compressed Gas Cylinders—Describe	HSP 11.01	
Hoisting and Rigging—Describe:	HSP 12.02	Procedure involving hoisting includes precautions. Pre-evolution briefing, safety meetings.
Ropes, Chains, Slings—Describe:	HSP 12.02	Procedure involving hoisting includes precautions. Pre-evolution briefing, safety meetings.
Machine Safe Guarding—Describe: All applicable machinery.	HSP 12.09	Procedures include precautions concerning machine guarding. Pre-evolution briefings, safety meetings.
Excavations and Trenching—Describe:	HSP 12.08	
Ladders—Describe: Ladder climbing is required for all operations and for some surveillances.	HSP 22.02	Procedures include precautions concerning ladders. Pre-evolution briefings, safety meetings.
Heat Stress/Cold Stress—Describe: Operations in the building involve high temperatures.	N/A	Pre-evolution briefings, safety meetings.
Noise—Describe: Work in areas designated as High Noise areas (above 85 dBa for 8 hrs.).	HSP 7.06	High noise areas are posted as hearing protection required. Procedures involving operation which involve high noise levels include precautions. Pre-evolution briefings, safety meetings.
Electrical Hazards—Describe: All work on or around electrical panels, transformers, and power wiring.	HSP 15.00, 2.08	Personnel involved in Lockout/Tagout operations are trained. Pre-evolution briefings, safety meetings.
Lifting—Describe: Movement of waste containers, etc.	N/A	Procedures for tasks involving lifting include precautions. Pre-evolution briefings, safety meetings.
Tripping Hazards—Describe: Walk around equipment and secondary containment berms.	N/A	Procedures include precautions concerning tripping hazards. Pre-evolution briefings, safety meetings.

APPENDIX 5

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Tasks Involving Contaminant	Max. Expected Conc. (a) air (w) waste	Contaminant (Synonyms) (Abbreviations)	OSHA PEL or ACGIH TLV<IDLH>	Hazard Type	Physical/Chemical Characteristics	Routes of Exposure	Exposure Symptoms <Target Organs>
6, 8, 10, 11	none unknown	Americium	unknown	Carc	Silvery metal; whitish oxide	Inh., Ing., Con.	Carcinogenic, nausea, hair loss; <respiratory system, bones>
6, 8, 10, 11	<0.010 mg/m3	Arsenic	0.010 mg/m3 <5 mg/m3>	Carc. Toxic	Silver-gray or tin-white brittle, odorless solid	Inh., Abs., Con., Ing.	Nasal ulceration; GI disturbances respiratory irritation. <Liver, kidneys, skin, lungs, lymphatic system>
6, 8, 10, 11	<0.5 mg/m3	Barium	0.5 mg/m3 <50 mg/m3>	Toxic	White, odorless solid	Inh., Ing., Con.	Irritates eyes, nose, throat, upper resp GI; muscle spasm; slow pulse; skin burns; <heart, CNS, skin, resp. sys, eyes>
6, 8, 10, 11	<0.002 mg/m3	Beryllium	0.002 mg/m3 <4 mg/m3>	Carc. Toxic	Metal, a hard, brittle, gray-white solid; noncombustible; slight explosion hazard in dust or powder form	Inh.	Respiratory symptoms; fatigue, weakness, weight loss; <Lungs, skin, eyes>
6, 11	<0.2 mg/m3	Cadmium dust	0.002 mg/m3 <9 mg/m3>	Carc. Toxic	Silver-white, blue tinged, lustrous, odorless solid	Inh., Ing.	Pulmonary Edema; cough, tight chest; chills; muscle aches; nausea, vomiting diarrhea; <Resp. sys., kidneys, prostate, blood>
6, 8, 10, 11	< 2 ppm	Carbon Tetrachloride	0.5 ppm <200 ppm>	Carc. VOC	Colorless liquid, ether-like odor, not combustible. VP: 91 mm Hg	Inh., Ing., Abs., Con.	CNS depression, nausea and vomiting, liver and kidney damage, skin irritation. <CNS, eyes, lungs, liver, kidneys, skin>
6, 8, 10, 11	<0.5 mg/m3	Chromium	0.5 mg/m3 <250 mg/m3>	Carc. Toxic	Blue-white to steel-gray, lustrous, brittle, hard solid.	Inh., Ing.	Corrosive to skin & mucous membranes carc. of lungs, nasal cavity, stomach, larynx
6, 8, 10, 11	<5 ppm	Hydrochloric Acid	5 ppm (7.5 mg/m3) <50 ppm>	Corr.	Colorless Liquid	Inh., Ing., Con.	Nose & throat irritation, burns throat & eyes; cough, choking <respiratory system, skin, eyes>
6, 8, 10, 11	<0.050 mg/m3	Lead	0.050 mg/m3 <100 mg/m3>	Toxic	Heavy, ductile, gray, soft metal	Inh., Ing., Con.	Weakness, insomnia, nervous irritability, tremors, muscle pain <CNS, PNS, GI tract, blood, kidneys>
6, 8, 10, 11	<0.01 mg/m3 (skin)	Mercury	0.01 mg/m3 (skin) <10 mg/m3>		Silver-white, mobile, heavy, odorless liquid	Inh., Con., Abs.	Eye & skin irritant; poison by inhalation; cough, tremor, headache, irritability; <GI tract, CNS>
6, 8, 10, 11	<50 ppm	Methylene Chloride	25 ppm <2300 ppm>	Carc. VOC	Colorless liquid with chloroform-like odor. BP: 104 F, LEL: 14%, UEL: 22%	Inh., Ing. Con.	Fatigue, weakness, sleepiness, lightheadedness, numbness & tingling in limbs, nausea, eye & skin irritation <CNS, CVS, eyes, skin>
6, 8, 10, 11	<1 mg/m3 (Insoluble) <0.1 mg/m3 (Soluble)	Nickel	1 mg/m3 (Insoluble) 0.1 mg/m3 (Soluble) <10 mg/m3>	Carc. Toxic	Silvery-white, hard, malleable, and ductile metal	Inh., Ing., Con.	Nasal, lung, and skin irritant; carcinogenic; <respiratory system, CNS>
6, 8, 10, 11	varies	Plutonium	unknown	Carc. Toxic Fire	Silvery metal, whitish oxide	Inh., Ing., Con.	Carcinogenic, nausea, hair loss; <respiratory system, CNS>
6, 8, 10, 11	<0.2 mg/m3	Selenium	0.2 mg/m3 <1 mg/m3>	Toxic	White, lustrous solid metal	Inh., Ing., Abs., Con.	Irritates eyes, nose, throat; GI distress; chills; headache; garlic breath <upper resp. system, skin, liver, kidneys, blood>
6, 8, 10, 11	<0.01 mg/m3	Silver	0.01 mg/m3 <10 mg/m3>	Toxic	White, lustrous, solid metal	Inh., Ing., Con.	Blue-gray eyes, skin irritation, ulceration; GI distress <Nasal septum, skin, eyes>
6, 8, 10, 11	< 2 mg/m3	Potassium Hydroxide (Caustic Potash)	2 mg/m3 <Not Established>	Corr.	White, odorless solid before mixing; disagreeable, sweet odor in solution	Inh., Ing., Con.	Severe skin irritation; nose irritation; temporary hair loss; <eyes, respiratory system, skin>

APPENDIX 5

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Tasks Involving Contaminant	Max. Expected Conc. (a) air (w) waste	Contaminant (Synonyms) (Abbreviations)	OSHA PEL or ACGIH TLV <IDLH>	Hazard Type	Physical/Chemical Characteristics	Routes of Exposure	Exposure Symptoms <Target Organs>
6, 8, 10, 11	< 25 ppm	Tetrachloro-ethylene	25 ppm <150 ppm>	Carc. VOC	Colorless liquid with sweet odor; not combustible. VP 14 mm Hg	Inh., Ing., Con.	Eye, nose, throat irritant; nausea, flushed face, vertigo, headache <liver, kidneys, CNS, upper resp. sys.>
6, 8, 10, 11	<100 ppm	Toluene (Methyl Benzene) (Methyl Benzol)	50 ppm <500 ppm>	VOC Fire	Colorless liquid/sweet, pungent benzene-like odor LEL: 1.2% UEL: 7.1 %	Inh., Ing., Abs., Con.	Fatigue, weakness, confusion, dizziness, headache; dilated pupils, nervousness, insomnia; <CNS, liver, kidneys, skin>
6, 8, 10, 11	<350 ppm	1,1,1-Trichloroethane (Methyl Chloroform)	350 ppm <700 ppm>	VOC	Colorless liquid, mild sweet chloroform-like odor.	Inh., Ing., Con.	Eye & skin irritation, dermatitis, headache, drowsiness <CNS, liver, kidneys>
none	none	Molybdenum	10 mg/m3 (Insoluble) <5,000 mg/m3>	Toxic	Dark gray or black powder with a metallic luster	Inh., Ing.	Irritates eyes, nose, and throat; diarrhea, listlessness <kidneys, respiratory system, blood>
6, 8, 10, 11	<50 ppm	Trichloro-ethylene (TCE)	50 ppm <1,000 ppm>	Carc. Toxic Fire	Colorless liquid, sweet odor. LEL: 8%, UEL: 10.5%	Inh., Ing., Conc.	Headache, vertigo, visual disturbance; vomiting, nausea; eye & skin irritation; <respiratory system, heart, liver, kidneys, CNS, skin>

KEY:

Abs.	Absorption
ACGIH	American Conference of Governmental Industrial Hygienists
BP	Boiling Point
Carc.	Carcinogen
CNS	Central Nervous System
Con.	Contact
Corr.	Corrosive
FP.	Flash Point - closed cup, unless otherwise noted.
IDLH	Immediately Dangerous to Life and Health - Maximum concentration from which one could escape within 30 minutes without experiencing any irreversible health effects.
Inh.	Inhalation
Ing.	Ingestion
LEL	Lower Explosive Limit
mg/m3	Milligrams per cubic meter
NA	Not applicable
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit - Concentration that nearly all workers may be repeatedly exposed, day after day, without adverse effect. (Based on an 8-hour workday and 40-hour workweek)
ppm	Parts Per Million
st	15 minute short term exposure limit
TLV	Threshold Limit Value - Concentration that nearly all workers may be repeatedly exposed, day after day, without adverse effect. (Based on an 8-hour workday and 40-hour workweek)
UEL	Upper Explosive Limit
ug/m3	Micrograms per cubic meter
VP	Vapor Pressure at 68 F in millimeters (mm) mercury (Hg) unless otherwise noted.

REFERENCES:

Air Contaminants - Permissible Exposure Limits (29 CFR 1910.1000)
American Conference of Governmental Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices for 1990 to 1991.
Sax, N. Irving, Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Company, New York, 1979

APPENDIX 6
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PERSONNEL PROTECTIVE EQUIPMENT

PPE normally used for each task and are inspected as follows:

Task Number	PPE
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Modesty clothing as required
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Safety shoes
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Safety glasses with side shields
9	Hearing protection
2	Hard hat
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Full-face respirator(if posted or per RWP)
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Anti-C PPE (if posted or per RWP)

PPE	INSPECTION CRITERIA
Clothing	<ol style="list-style-type: none">1. Determine that the clothing material is correct for the specified task at hand in accordance with this HASP.2. Closure failure, tears, punctures, seam discontinuities.
Gloves	<ol style="list-style-type: none">1. Pressurize glove to check for pinholes OR2. Inflate glove and hold under water <p>In either case, no air should escape.</p>
Fully-Encapsulating Suits	<ol style="list-style-type: none">1. Check the operation of pressure relief valves.2. Inspect the fitting of wrist, ankles, and neck.3. Check the faceshield, if so equipped, for: cracks, crazing, fogginess.
SCBA	<ol style="list-style-type: none">1. Inspect SCBAs, before and after each use; at least monthly when in storage; every time they are cleaned.2. Check all connections for tightness.3. Check material conditions for: signs of pliability; signs of deterioration; signs of distortion.4. Check for proper setting and operation of regulators and valves (according to manufacturer's recommendations).5. Check operation of alarm(s).6. Check faceshields and lenses for: cracks, crazing, fogginess.
Air-Purifying Respirators	<ol style="list-style-type: none">1. Inspect air-purifying respirators to ensure that have been adequately cleaned, after each use; during cleaning; monthly, if in storage for emergency use.2. Check material conditions for: signs of pliability, signs of deterioration, signs of distortion.3. Examine cartridges or canisters to ensure that: they are the proper type for the intended use; the expiration date has not been passed; they have not been opened or used previously.4. Check faceshield and lenses for: cracks, crazing, fogginess.
Respirators	<ol style="list-style-type: none">1. Check material conditions for: signs of pliability, signs of deterioration, signs of distortion.2. Examine cartridges to ensure that: they are the proper type for the intended use; the expiration date has not been passed; they have not been opened or used previously.3. Check faceshield and lenses for: cracks, crazing, fogginess.

APPENDIX 7
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PROCEDURES, POSTING, MONITORING, AND CONTROLS

3.1.1 Radiological Postings Required

Currently there are areas in Building 374 that require the following postings.
Radiological Buffer Area (RBA)
Contamination Area
There currently no areas in Building 374 that require the following postings.
Radiation Area
Airborne Radioactivity Area
Very High Radiation Areas
High Radiation Areas
High Contamination Area
Very High Contamination Area

3.1.2 Radiological Monitoring

RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
Routine contamination survey	As specified by Rad. Protection	Alpha	SAC4 and Bicron Frisk-Tech with A-100 probe
Routine radiation survey	As specified by Rad. Protection	Gamma/Neutron	Victoreen 450G Ludlum 12-4
Continuous monitoring	Continuous air monitoring	Alpha	Fixed air sampling heads and Selective Alpha Air Monitors (SAAMs) Continuous Air Monitors (CAMS)

3.1.3 Engineering and Administrative Controls

CONTROL	DESCRIBE
Dilution (General) Ventilation	All units in negative air areas off main plenum system
Enclosure/Glovebag	GB-020, GB-118, GB-120. Most pumps in RBA are enclosed in pumpboxes. GBs vented by Vent Scrubber, pumpboxes are vented to atmosphere through HEPA filters plenums.

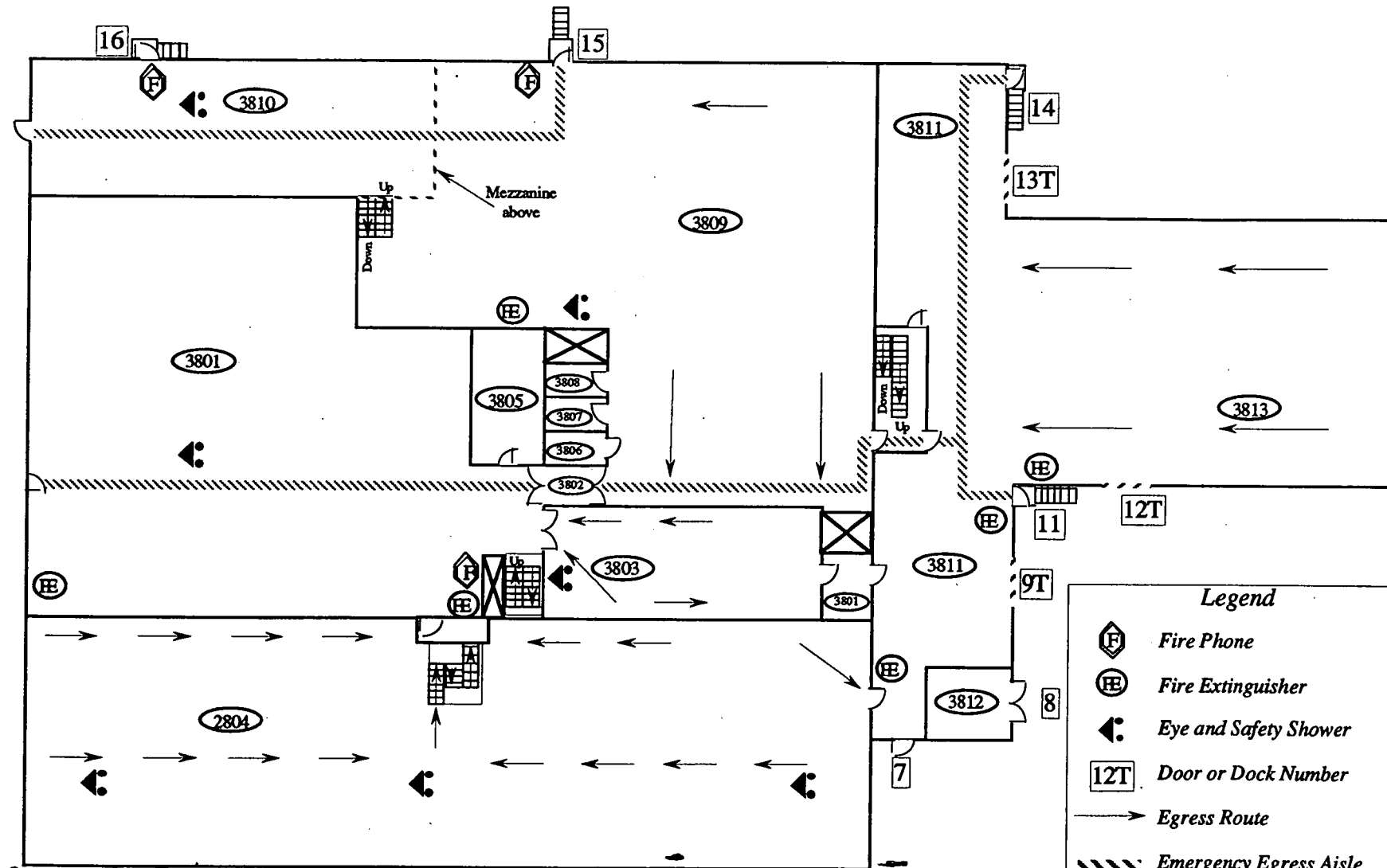
3.1.5 Procedures

PROCEDURE NUMBER	PROCEDURE TITLE
4-D09-OPS-374-WO-3002	Waste Treatment Evaporator
4-D10-OPS-374-WO-3004	Waste Treatment Spray Dryer and Saltcrete Process
WO-3011	Decontamination-Precipitation System
WO-3013	Laundry Waste Storage Tanks
WO-3207	The 231 Tank System
CO-5006	Second & Third Stage Precipitation Feed Storage Tanks
CO-5010	Basic Waste Treatment Receiving and Blending System
CO-5012	Operating the Waste Treatment Evaporator Feed Storage Tanks
CO-6102	Nitric Acid Supply System
CO-6109	Potassium Hydroxide Supply System

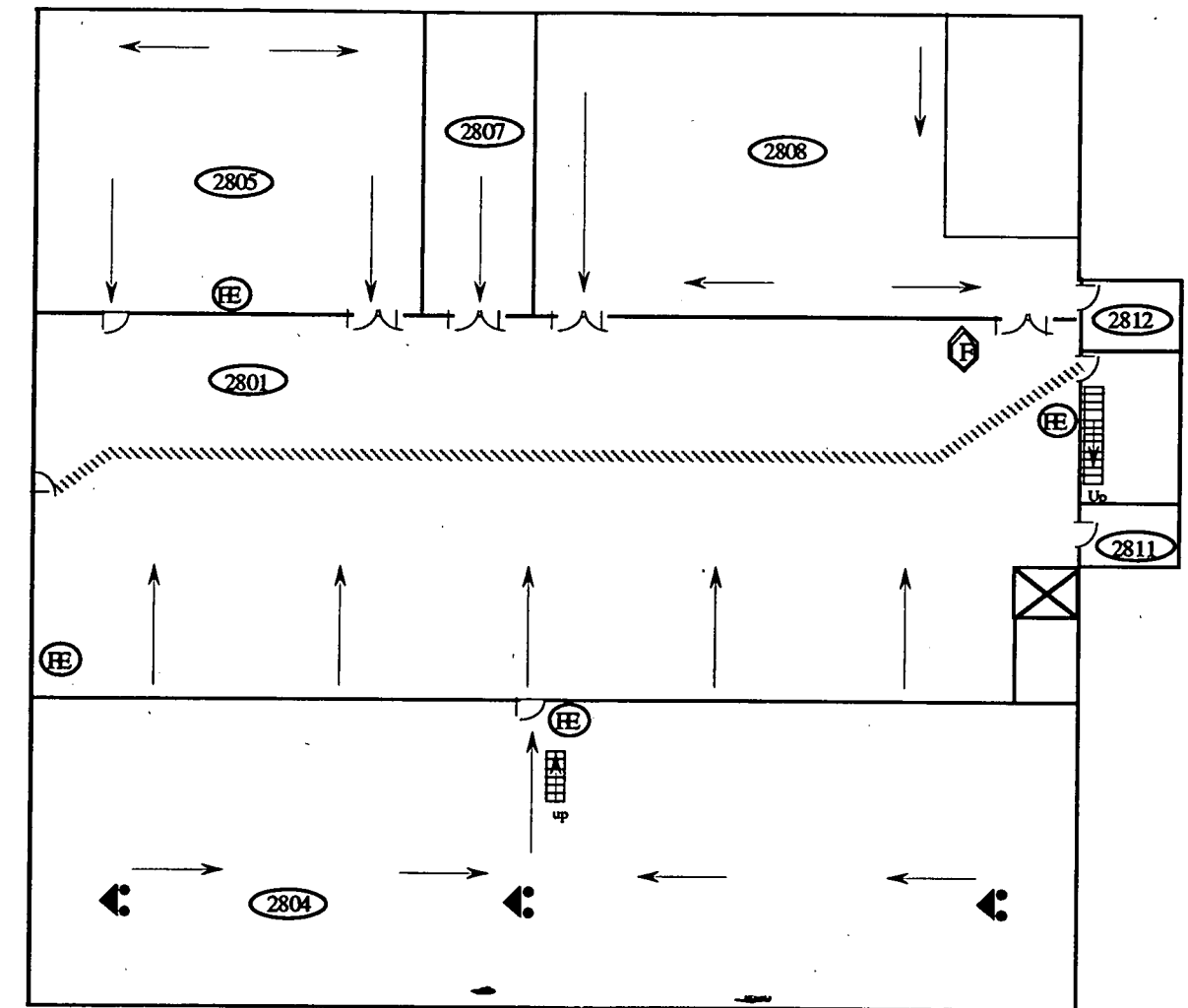
APPENDIX 8

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BUILDING 374 PROCESS AND ASSEMBLY AREA



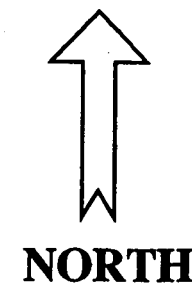
GROUND FLOOR PLAN OF BUILDING 374 PROCESS AREA



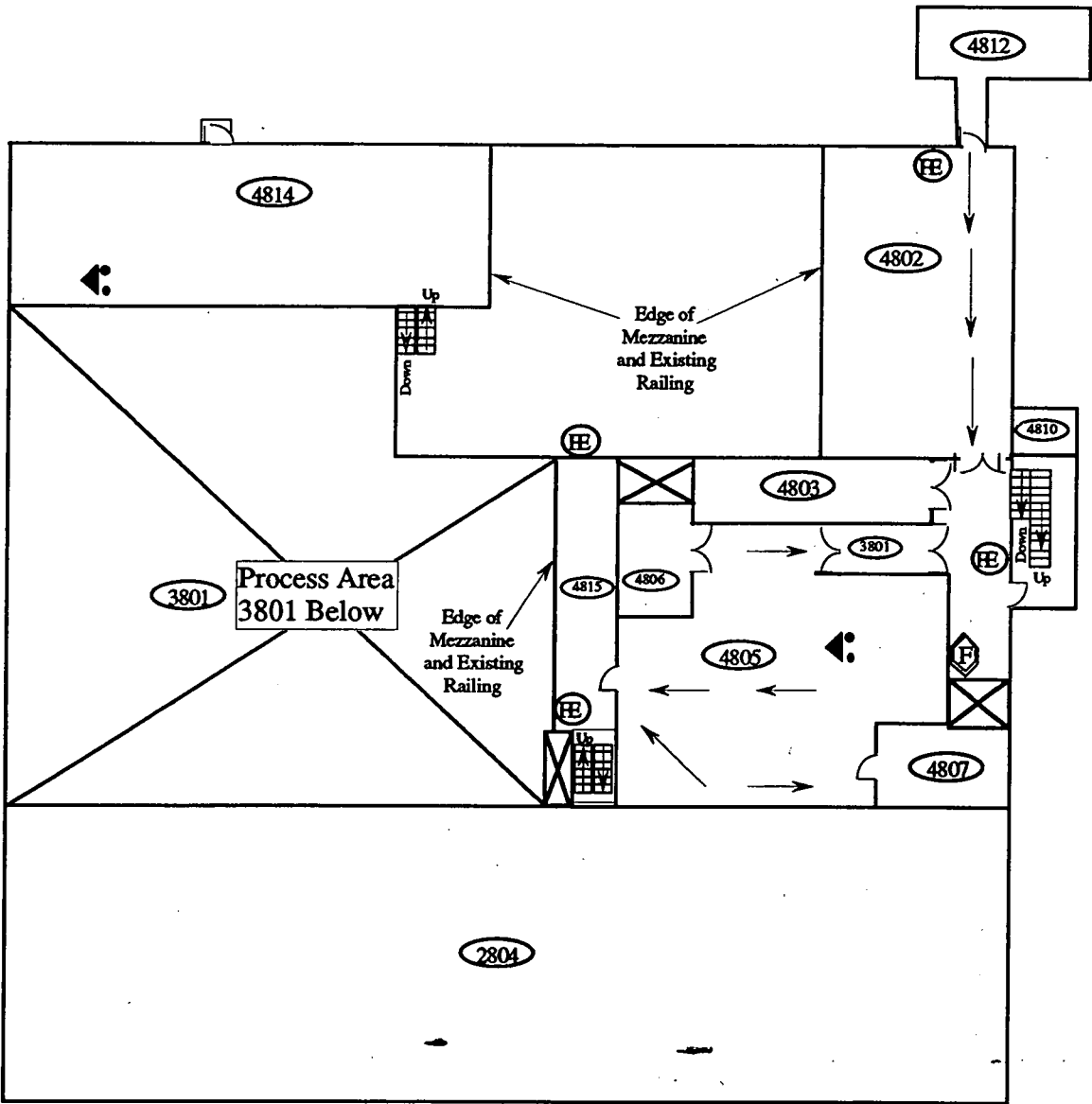
BASEMENT FLOOR PLAN OF BUILDING 374 PROCESS AREA

Legend

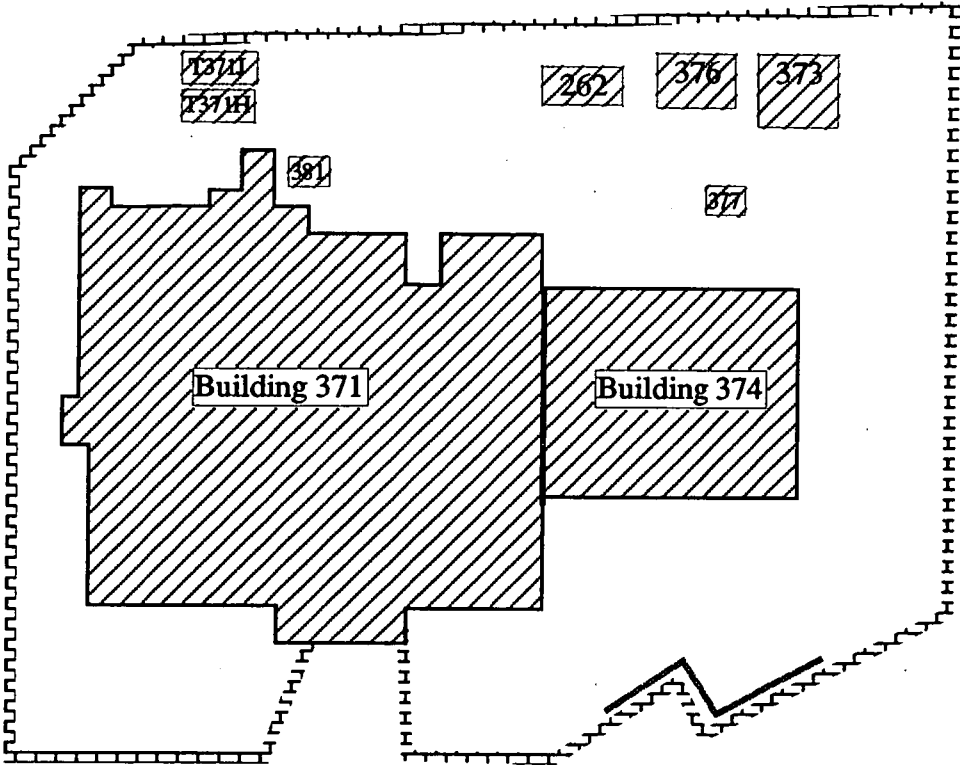
- Fire Phone
- Fire Extinguisher
- Eye and Safety Shower
- Door or Dock Number
- Egress Route
- Emergency Egress Aisle



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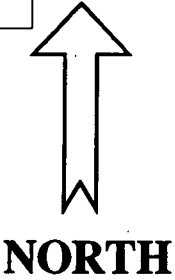
MEZZANINE FLOOR PLAN OF BUILDING 374 PROCESS AREA



ASSEMBLY AREA BUILDING 374

Legend

- Fire Phone
- Fire Extinguisher
- Eye and Safety Shower
- Door or Dock Number
- Egress Route
- Security Fence
- Assembly Area



APPENDIX 9

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PROCESS DRAINS

